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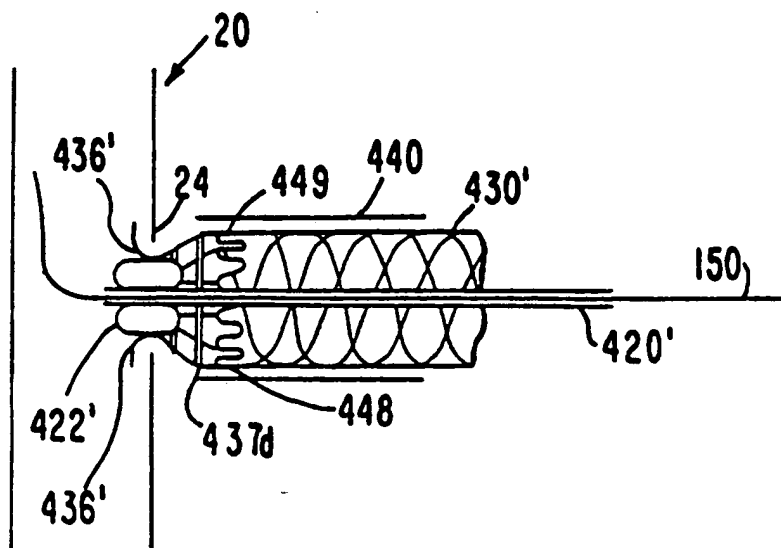
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61F 2/06, A61B 17/32	A3	(11) International Publication Number: WO 98/19629 (43) International Publication Date: 14 May 1998 (14.05.98)
(21) International Application Number: PCT/US97/19946 (22) International Filing Date: 5 November 1997 (05.11.97) (30) Priority Data: 08/745,618 7 November 1996 (07.11.96) US 08/839,199 23 April 1997 (23.04.97) US (71) Applicant: VASCULAR SCIENCE INC. [US/US]; Suite 202, 701 Decatur Avenue North, Minneapolis, MN 55427 (US). (72) Inventors: BACHINSKI, Thomas, J.; 19059 Orchard Trail, Lakeville, MN 55044 (US). GOLDSTEEN, David, S.; 4885 East Lake Harriet Parkway, Minneapolis, MN 55409 (US). SULLIVAN, Daniel, J.; 1245 Oak View Road, Medina, MN 55356 (US). (74) Agents: JACKSON, Robert, R. et al.; Fish & Neave, 1251 Avenue of the Americas, New York, NY 10020 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims</i> <i>and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 11 September 1998 (11.09.98)
(54) Title: MEDICAL GRAFTING CONNECTORS AND FASTENERS (57) Abstract <p>A body tissue graft for use in a patient includes a frame structure made of a first elastic material, a covering of a second elastic material on the frame structure, the covering substantially filling openings in the frame structure, and a connector connected to the frame structure. Projections are secured to the connector structure. The projections facilitate attachment of the tubular graft in a patient by securing the graft to the body tissue with which the graft is employed. The connector selectively circumferentially expands and the projections selectively circumferentially expand. This may be done using an inflatable balloon to circumferentially expand the projections. A restraining member may be provided to restrain the projections in a cone shape so that an end of the graft may be used to open an aperture through a side wall of existing body organ tubing and a portion of the projections may enter the aperture.</p>		



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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-57,58-65

A graft having a frame structure with a covering and a connector fixed to the frame structure on both ends.

2. Claims: 66-119

A connector to be inserted inside into a graft and which is enlargeable to press the graft into body tissue.

3. Claims: 120-125

A graft having two spaced annular flange portions.

4. Claim : 126

An artificial graft having a first tubular portion and a second tubular portion which is transverse and in fluid communication with the first tubular portion.

5. Claims: 130-142

An apparatus to extend a graft having struts on its outer ends in a cone-shaped arrangement.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern. Application No

PCT/US 97/19946

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/19946

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61F2/06 A61B17/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61F A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 22745 A (SCHNEIDER USA INC ; INDIANA UNIVERSITY FOUNDATION (US); UNIV JOHNS) 1 August 1996	1-13, 19-21, 23,24, 27,28, 31,32, 34-36, 46-49, 58-61
A	see the whole document --- -/--	16,51, 62,130



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

23 July 1998

Date of mailing of the international search report

4 August 1998 (04.08.98)

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 712 614 A (ADVANCED CARDIOVASCULAR SYSTEM) 22 May 1996 see the whole document ---	1-6, 8-13, 19-21, 28,29, 31-37, 58-61
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A	---	1-3,8,9, 15
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2	---	-/--

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 97/19946

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94 01056 A (BOSTON SCIENT CORP) 20 January 1994 see page 13, line 16 - line 24; claim 2; figure 2 ---	120-125
X	GB 489 316 A (DAVIS & GECK, INC) 25 July 1938 see figures 4,5,7A ---	120-125
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 97/19946

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 127-129
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
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Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
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3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
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